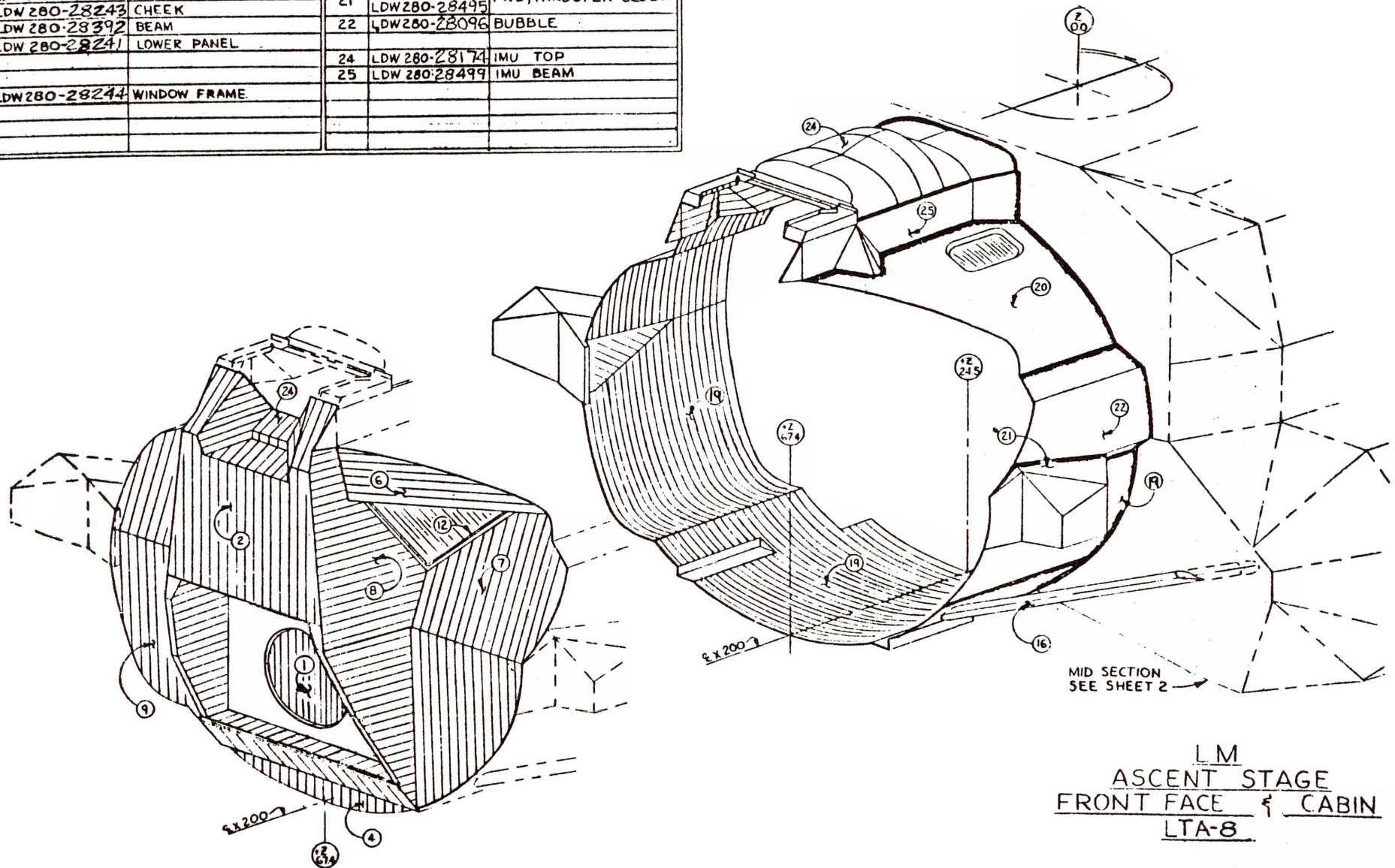


LUNAR MODULE  
STRUCTURE  
 &  
THERMAL SHIELDING

7-26-67  
 P.R.R. 7-18-67  
 ENGINEERING SCHEDULING 80-119167

SK 17-10-18

THERMAL SHIELD INSTL LDW280-28173					
FRONT FACE SHIELDING			CABIN SHIELDING		
1	LDW 280-28175	FWD HATCH	16	LDW 280-28875	DRAG STRUT
2	LDW 280-28176	CENTER PANEL			
4	LDW 280-28279	LOWER BULKHEAD	19	LDW 280-28178	BOTTOM
			20	LDW 280-28347	UPPER
6	LDW 280-28242	BROW		LDW 280-28179	
7	LDW 280-28243	CHEEK	21	LDW 280-28495	FWD, THRUSTER CLUST.
8	LDW 280-28392	BEAM	22	LDW 280-28096	BUBBLE
9	LDW 280-28241	LOWER PANEL			
			24	LDW 280-28174	IMU TOP
			25	LDW 280-28499	IMU BEAM
12	LDW 280-28244	WINDOW FRAME			



LM  
ASCENT STAGE  
FRONT FACE & CABIN  
LTA-8



# THERMAL SHIELDING LDW280-28150

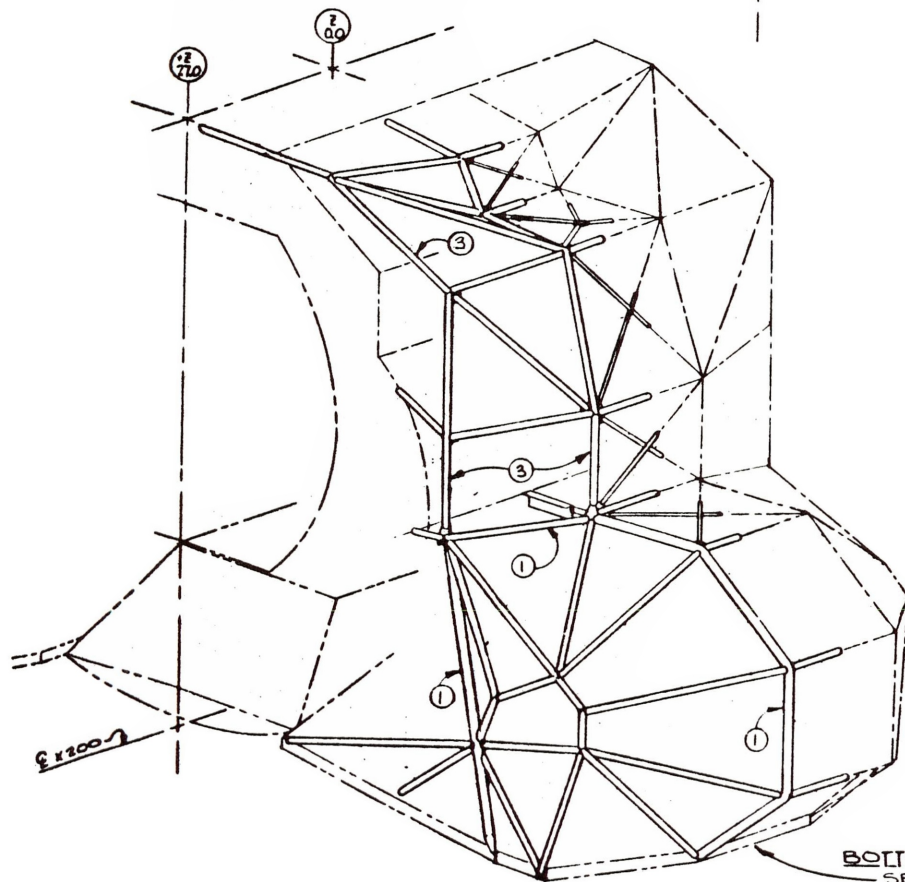
ITEM	DRAWING	TITLE
1	LDW280-28155	CAGE INSTL L.H. TANK
	LDW280-28226	CAGE ASSY L.H. TANK
2	LDW280-28160	SHLD INSTL L.H. TANK
3	LDW280-28381	CAGE INSTL L.H. & R.H. SIDE
	LDW280-28382	CAGE ASSY L.H. & R.H. SIDE
4	LDW280-28163	SHLD INSTL L.H. & R.H. SIDE
5	LDW280-28861	SHIELD, TOP $\times 312 \frac{1}{2}$
6	LDW280-28851	SHLD, FWD & AFT, TANKS
7	LDW280-28853	SHLD, FWD & AFT, BLKAD
8	LDW280-28282	SHLD INSTL, UPR HATCH
9	LDW280-28154	SHLD INSTL, UPR BLKAD
11	LDW280-28398	BRKT, DOCKING LIGHT
12	LDW280-28845	FWD, VHF ANTENNA
13	LDW280-28885	STEERABLE ANTENNA

## ② SHLD INSTL L.H. TANK LDW280-28160

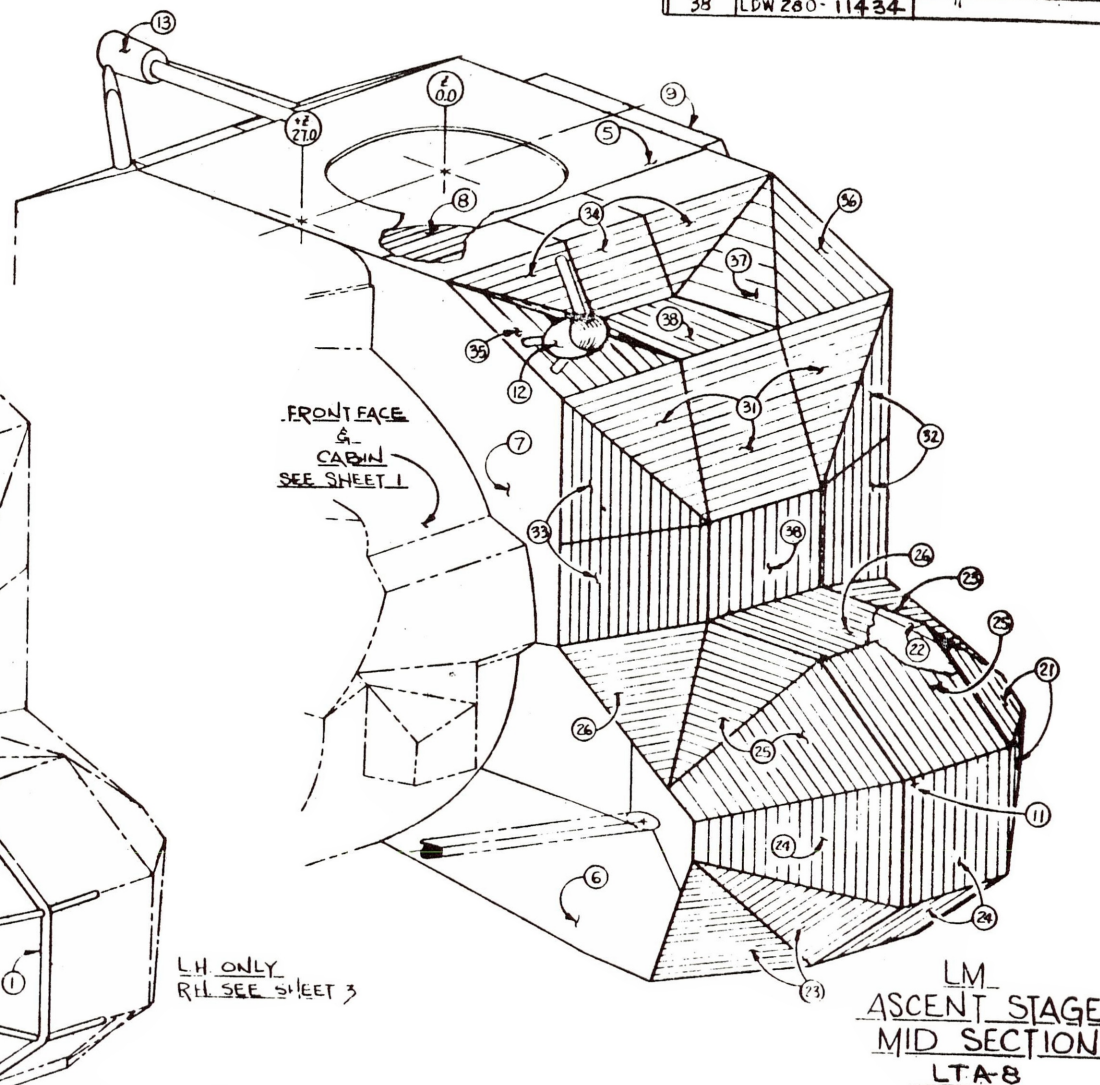
ITEM	DRAWING	TITLE
21	LDW280-11437	SHIELD
22	LDW280-11438	"
23	LDW280-11439	"
24	LDW280-11440	"
25	LDW280-11441	"
26	LDW280-11442	"

## ④ SHLD INSTL L.H. & R.H. SIDE LDW280-28163

ITEM	DRAWING	TITLE
31	LDW280-11426	SHIELD
32	LDW280-11427	"
33	LDW280-11428	"
34	LDW280-11429	" L.H. ONLY
35	LDW280-11430	" R.H. ONLY
36	LDW280-11431	"
37	LDW280-11432	"
38	LDW280-11433	"
	LDW280-11434	"



BOTTOM THERMAL ASSY.  
SEE SHEET 4.



LM  
ASCENT STAGE  
MID SECTION  
LTAB

COMPLETE REVISION RRR 7-20-67  
ENGINEERING SCHEDULING 4-25-67

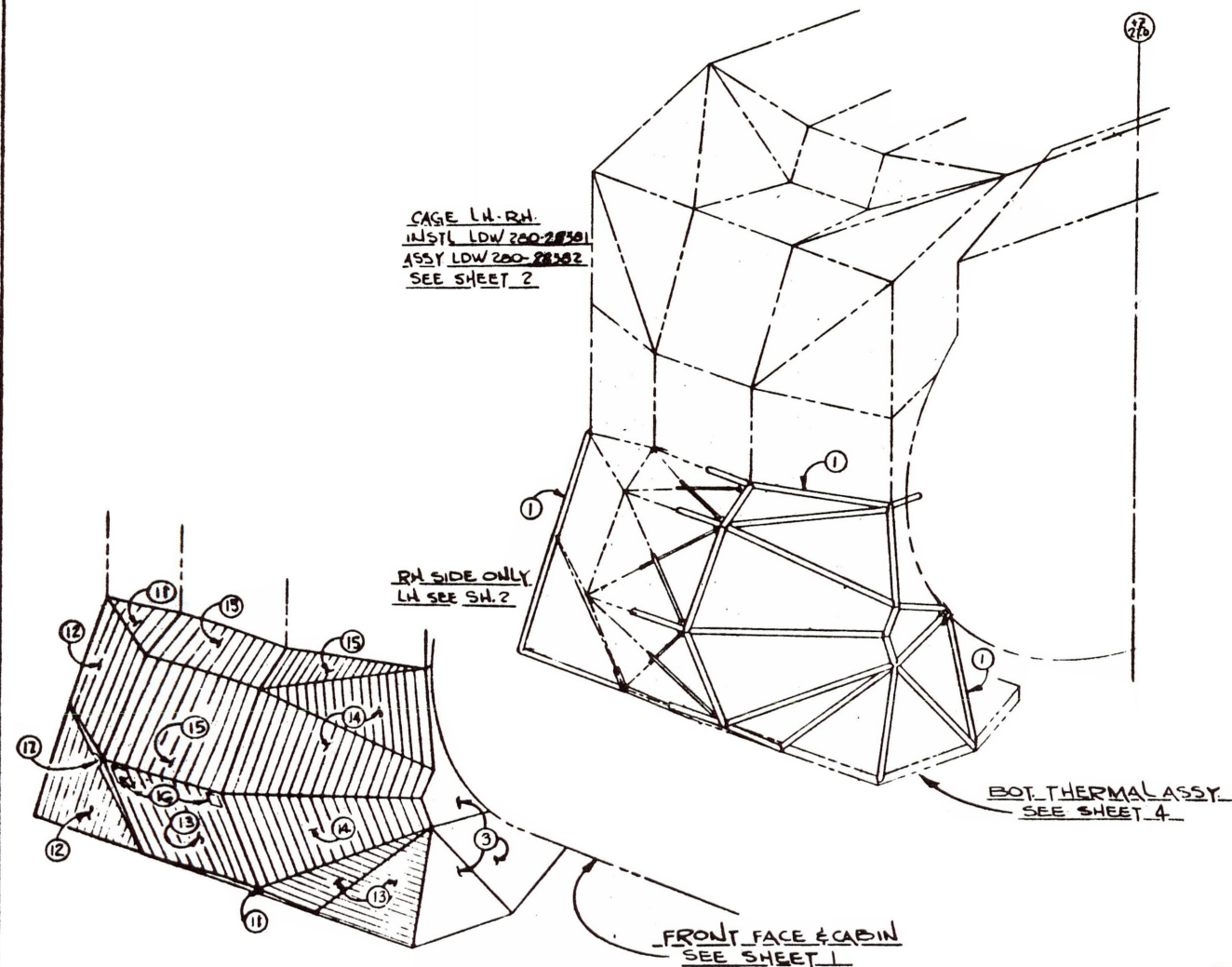
SHEET 2  
SK 17-30-18

# THERMAL SHIELDING LDW 280-28150

ITEM	DRAWING	TITLE
1	LDW 280-28156	CAGE INSTL. R.H. TANK
2	LDW 280-28231	CAGE ASSY. R.H. TANK
3	LDW 280-28161	SHLD INSTL. R.H. TANK
5	LDW 280-28851	SHLD INSTL. FWD & AFT TK

# (2) SHIELDING INSTL. R.H. TK LDW 280-28161

ITEM	DRAWING	TITLE
11	LDW 280-11445	SHIELD
12	LDW 280-11446	"
13	LDW 280-11447	"
14	LDW 280-11448	"
15	LDW 280-11449	"
16	LDW 280P11500	
17	LDW 280P11517	FAIRING



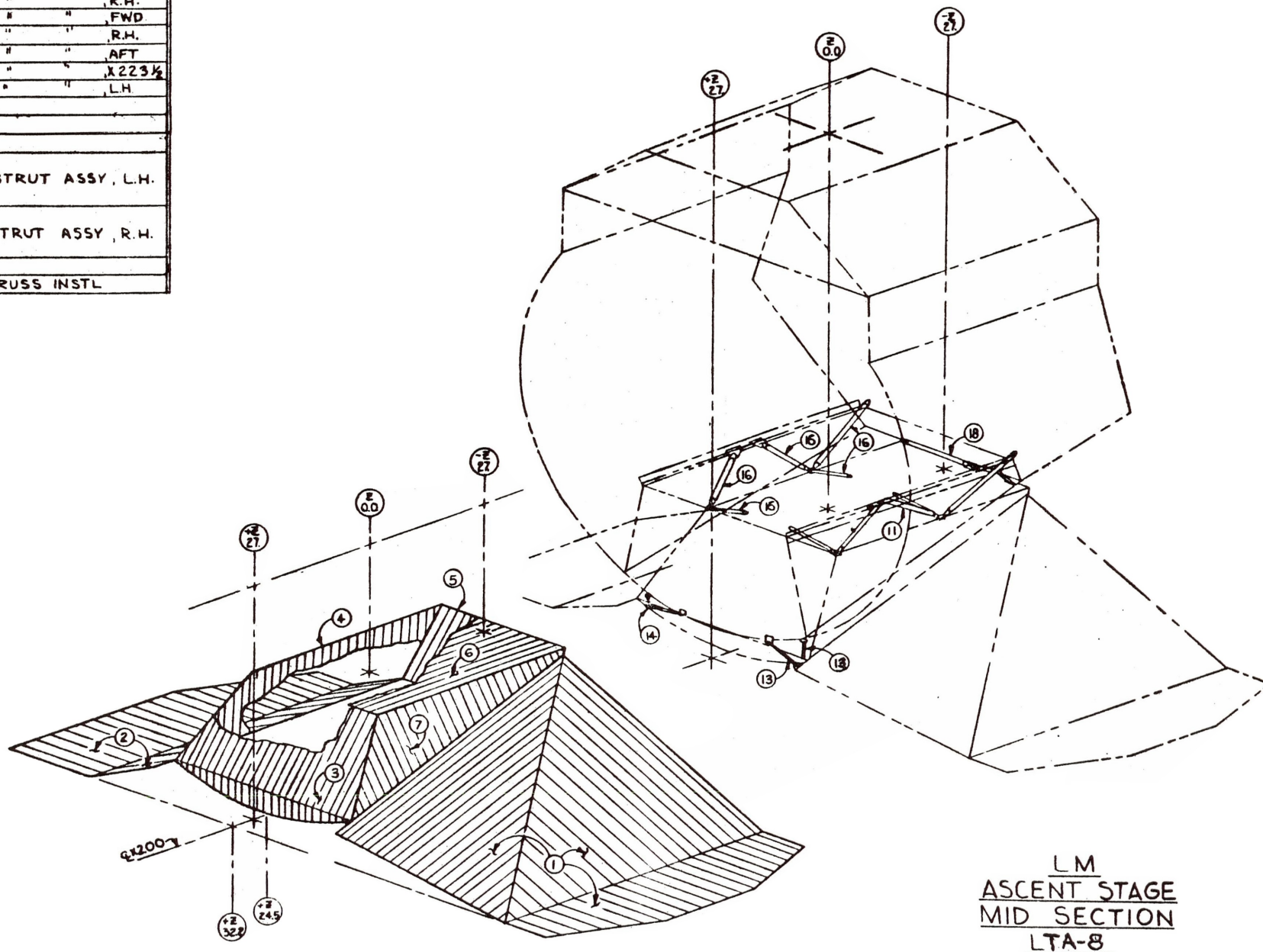
COMPLETE REVISION PRR-4-26-67  
ENGINEERING SCHEDULING 46 10-16-67

SHEET 3

SK 17-30-18



THERMAL SHIELDING LDW 280-28153		
ITEM	DRAWING	TITLE
1	LDW 280-28154	PANEL INSTL, L.H.
2	LDW 280-28162	" " R.H.
3	LDW 280-28203	" " FWD
4	LDW 280-28222	" " R.H.
5	LDW 280-28223	" " AFT
6	LDW 280-28224	" " X223 1/2
7	LDW 280-28225	" " L.H.
11	LDW 280-28866	STRUT ASSY, L.H.
13	LDW 280-28879	
14	LDW 280-28481	STRUT ASSY, R.H.
16	LDW 280-28867	
18	LDW 280-28165	TRUSS INSTL



LM  
ASCENT STAGE  
MID SECTION  
LTA-8

ENGINEERING SCHEDULING P.R.R. 7-20-67 4-27-67

SHEET 4

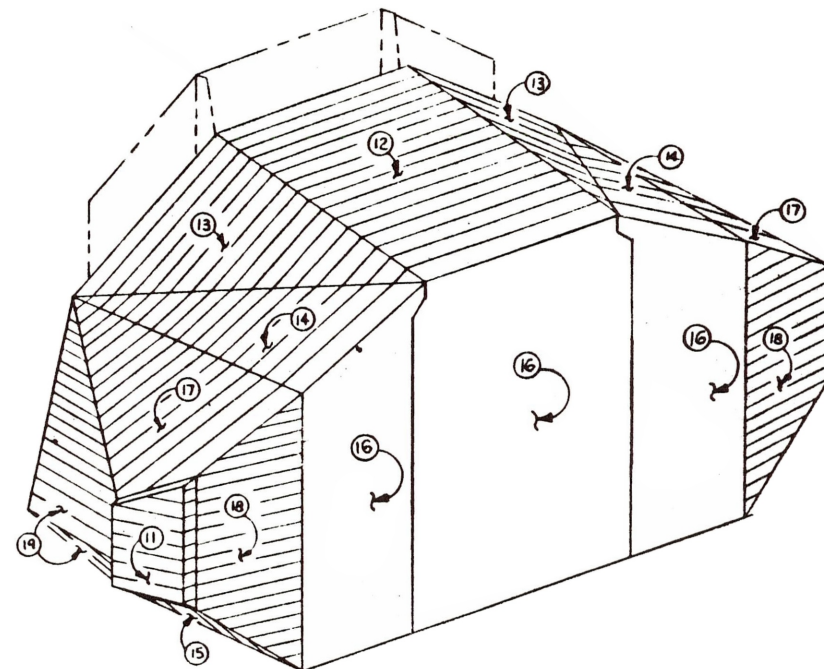
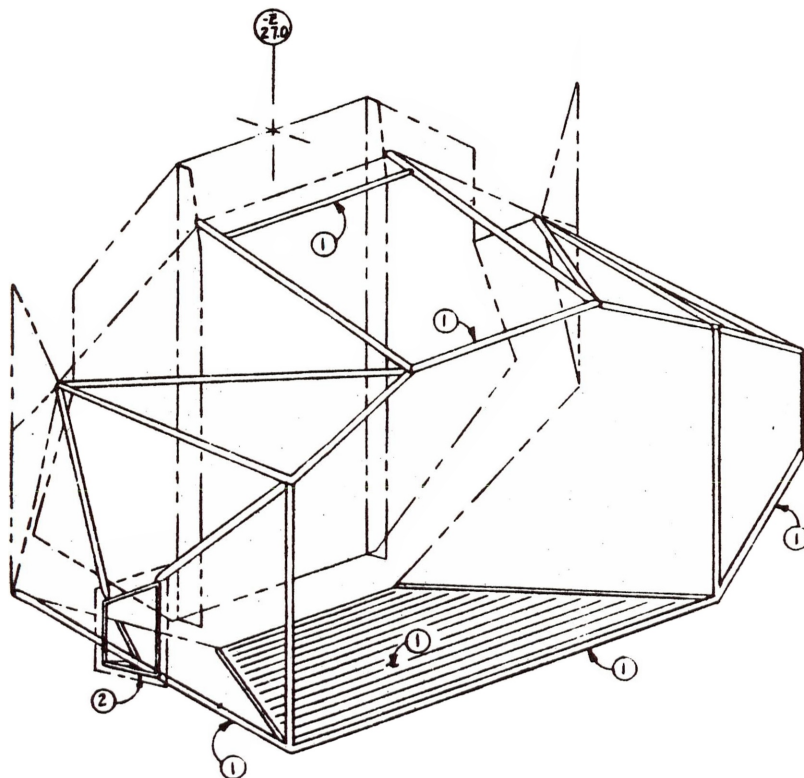
SK-17-30-18

# THERMAL SHIELDING LDW 280-28450

1	LDW 280-28451	CAGE ASSY
2	LDW 280-28452	PANEL ASSY
3	LDW 280-28453	SUPT INSTL RCS AFT
3	LDW 280-28453	SHIELD INSTL

## ③ SHIELDING INSTL LDW 280-28453

11	LDW 280-28871	SHLD INSTL RCS AFT
12	LDW 280-14393	SHLD ASSY UPR MID
13	LDW 280-14394	" " " INBD
14	LDW 280-14395	" " " OUTBD
15	LDW 280-14399	" " " LWR SIDE
16	LDW 280-14392	" " " ACCESS
17	LDW 280-14396	" " " UPR SIDE
18	LDW 280-14397	" " " AFT SIDE
19	LDW 280-14398	" " " SIDE ACC



LM  
ASCENT STAGE  
AFT EQUIPMENT BAY  
LTA-8

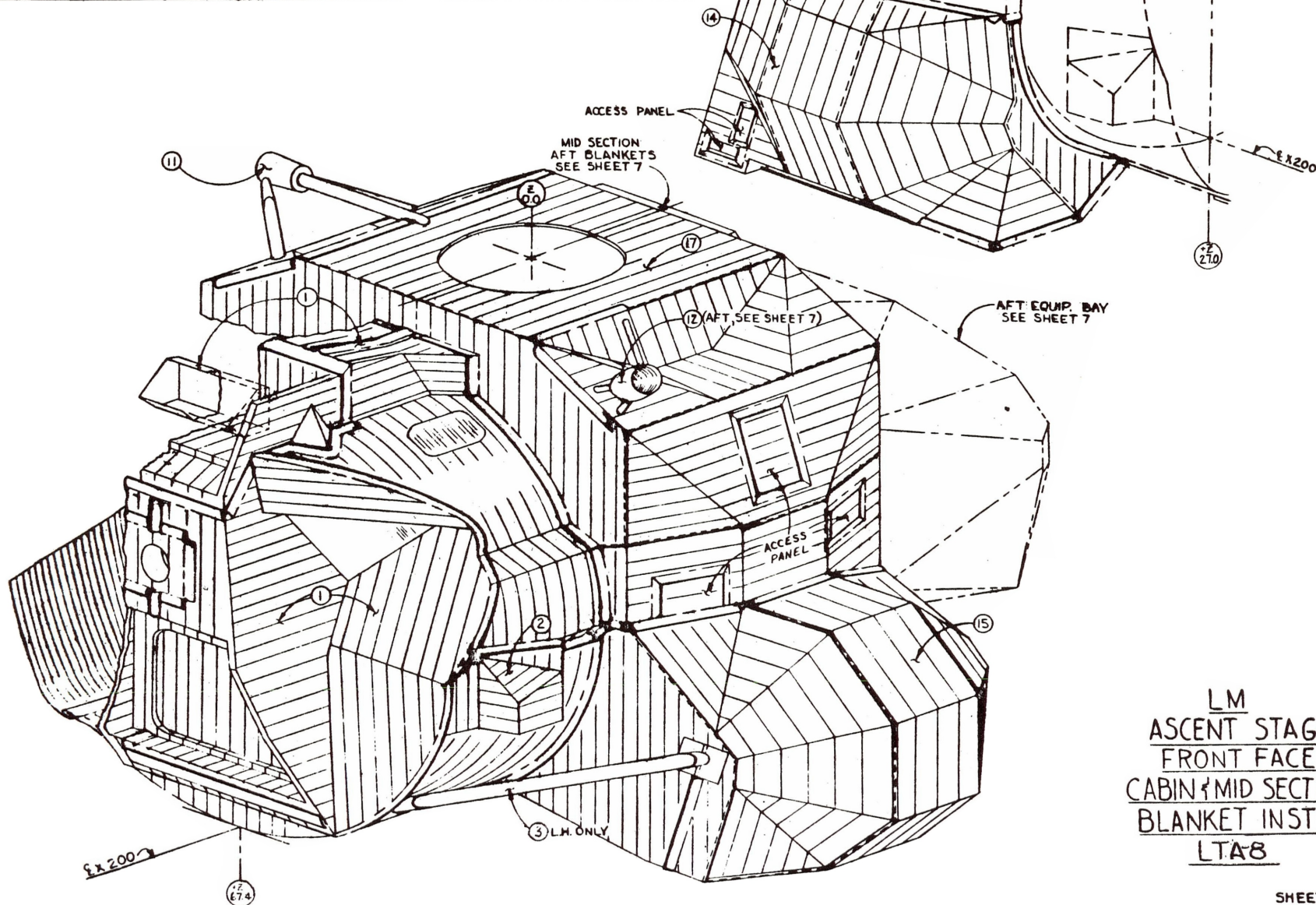
7-20-67  
ENGINEERING SCHEDULING PRR 5-2-67

SHEET 5

SK 17-30-18



ASCENT STAGE, BLANKET INSTL			
FRONT FACE & CABIN LDW280-28173		MID SECTION LDW280-28150	
1	LDW280-28173	11	LDW280-28885 STEERABLE ANTENNA
2	LDW280-28180 RCS, FWD RH & L.H.	12	LDW280-28895 FWD, VHF ANTENNA
3	LDW280-28875 DRAG STRUT	14	LDW280-28853 OXIDE TANK, R.H. SIDE
		15	LDW280-28854 FUEL TANK, L.H. SIDE
		17	LDW280-28856 UPPER RH. & L.H. SIDE



LM  
ASCENT STAGE  
FRONT FACE  
CABIN & MID SECTION  
BLANKET INSTL  
LTA8

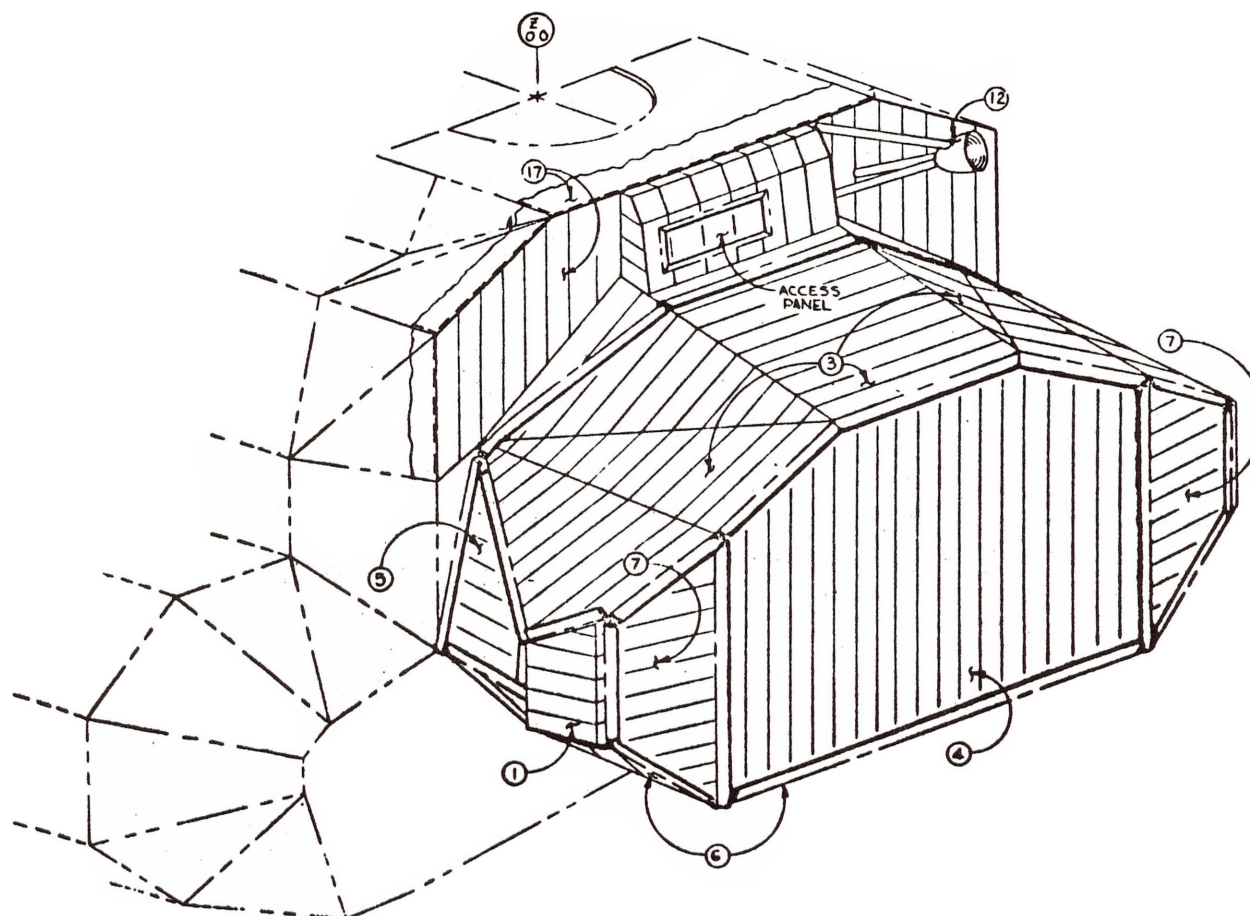
**SHEET 6**

ENGINEERING SCHEDULING P.R.R. 7-20-67  
4-11-67

SK17-30-18

ASCENT STAGE BLANKET INSTALLATIONS		
AFT EQUIPMENT BAY LDW280-28453		
1	LDW280-28897	RCS, AFT R.H. 4' L.H.
3	LDW280-14435	BLANKET, TOP
4	LDW280-14436	BLANKET, BACK
5	LDW280-14437	BLANKET, RH 4' L.H. SIDE
6	LDW280-14438	BLANKET, BOTTOM
7	LDW280-14439	BLANKET, R.H. 4' L.H. BACK

MID SECTION SEE SHEET 6		
12	LDW280-28895	AFT, VHF ANTENNA
17	LDW280-28856	UPPER R.H. 4' L.H. SIDE



LM  
ASCENT STAGE  
AFT EQUIPMENT BAY  
BLANKET INSTL  
LTAB

SHEET 7

ENGINEERING SCHEDULING P.R.R. 7-20-67  
4-11-67

SK17-30-18



# CABIN PRIME STRUCTURE LDW280-28010

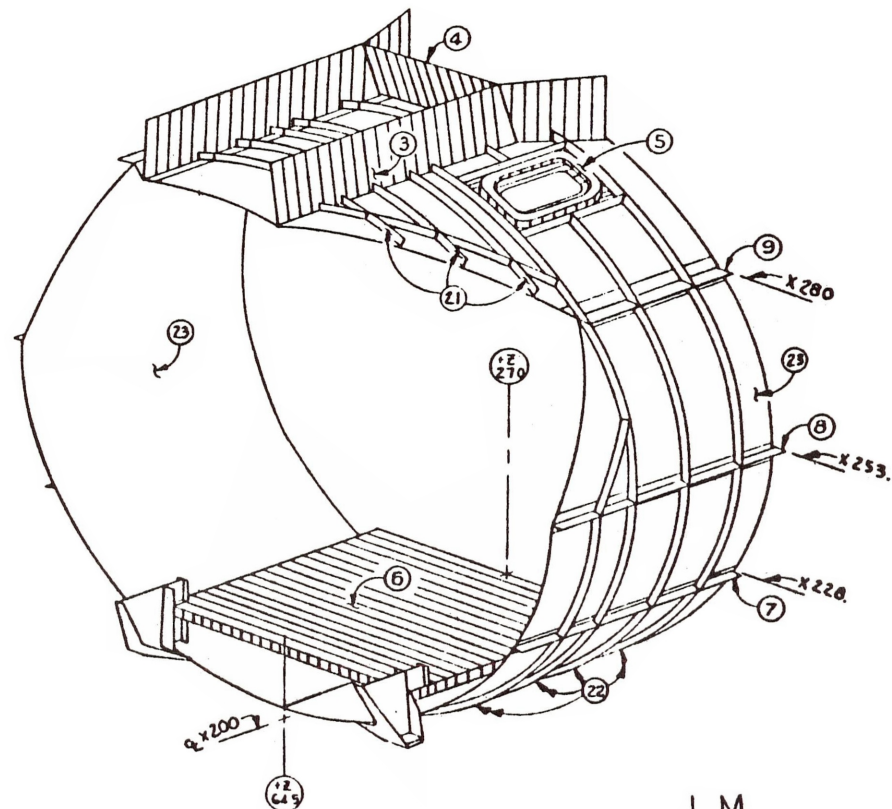
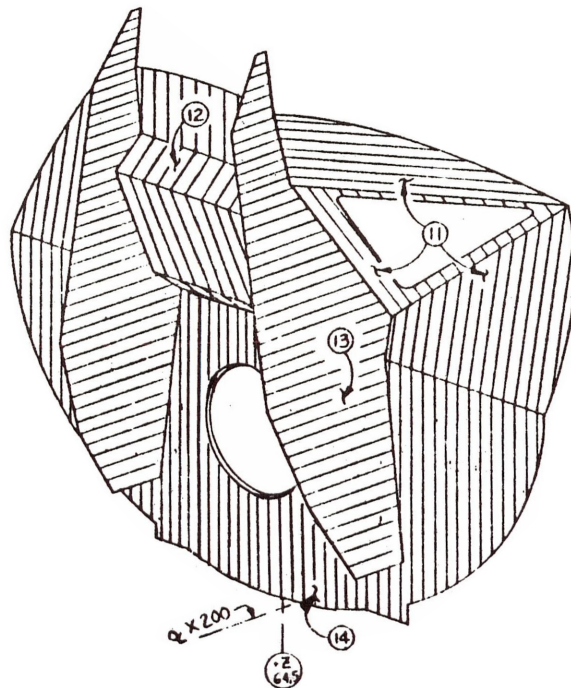
ITEM	DRAWING	TITLE
1	LDW280-28075	FACE ASSY
2	LDW280M28137	FRONT FACE MACHINING
3	LDW280-28051	CABIN SKIN INSTL
4	LDW280-28031	IMU BEAM INSTL
5	LDW280-28114	FRAME INSTL CANTED
6	LDW280-28023	CABIN WINDOW INSTL UPR
7	LDW280H23060	FLOOR ASSY 1 INSTL
8	LDW280-28025	LONGERON INST X228RH
9	LDW280-28049	LONGERON INST X228LH
10	LDW280-28047	LONGERON INST X252-X253
11	LDW280-28048	LONGERON INST X280

## ① FRONT FACE MACHINING LDW280M28137 FRONT FACE ASSY LDW280-28011

ITEM	DRAWING	TITLE
11	LDW280-28015	PNL ASSY CHEEK, BROW WIND
12	LDW280-28016	PNL ASSY UPR CENTER
13	LDW280M10085	WEB BEAM
14	LDW280M10086	BULKHEAD UPR

## ② CABIN SKIN INSTL LDW280-28051

ITEM	DRAWING	TITLE
21	LDW280-28021	FRAME INSTL UPR
22	LDW280-28074	FRAME INSTL
23	LDW280-28013	SKIN ASSY



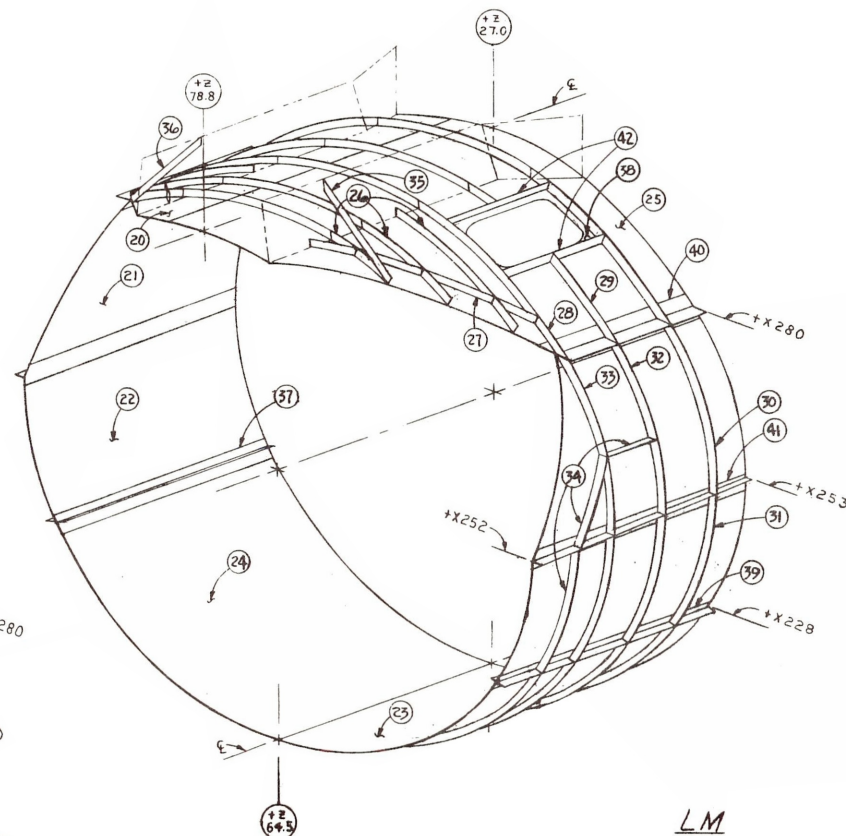
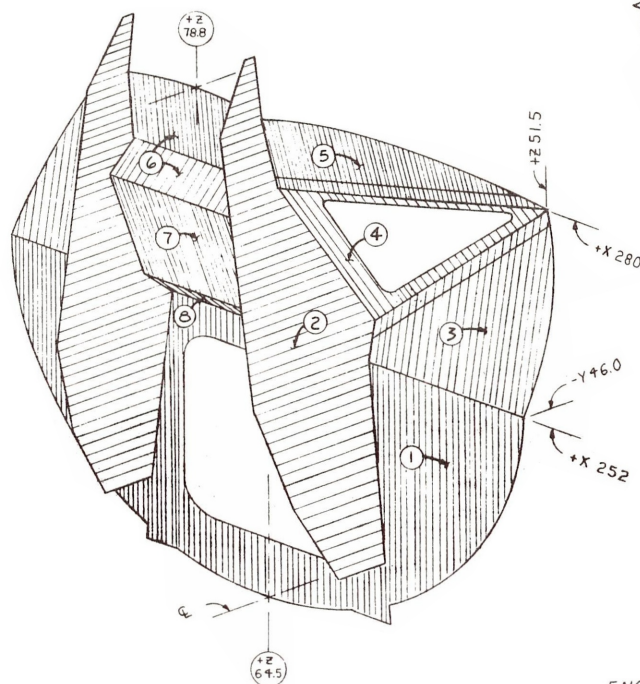
L.M.  
ASCENT STAGE  
FRONT FACE & CABIN  
LTA-8

ENGINEERING SCHEDULING P.R. 7-20-67  
5-8-67

SK 17-31-18

CABIN - LDW280-28051		
ITEM	DRAWING	TITLE
20	LDW280-10155	SKIN-R.H. UPPER
21	LDW280-10156	" X280 TO 252, R&L.H.
22	LDW280-10157	" X252 TO 228, R&L.H.
23	LDW280-10158	" L.H. LOWER
24	LDW280-10159	" R.H. LOWER
25	LDW280-10154	" L.H. UPPER
26	LDW280-10235	FRAME +Z67, 61, 55
27	LDW280-10236	" BROW
28	LDW280-10233	" +Z51, FROM X280 UPPER
29	LDW280-10241	" +Z42, " " "
30	LDW280-10237	" +Z33, " X252 "
31	LDW280-10232	" " " " LOWER
32	LDW280-10234	" +Z42 " X280 "
33	LDW280-10240	" +Z51 " " "
34	LDW280-10231	" +Z58 " X252 "
35	LDW280-10248	STRUCT ASSY - Z67 LEFT HAND
36	LDW280-10251	STRUCT ASSY +Z67 RIGHT HAND
37	LDW280M10028	LONGERON (CRUCIFORM) RH. X228
38	LDW280M10062	FRAME, WINDOW, UPPER
39	LDW280M10025	LONGERON (CRUCIFORM) L.H. X228
40	LDW280M10026	" " " X280
41	LDW280M10027	" " " X252
42	LDW280-10238	FRAME, WINDOW

FRONT FACE - LDW280-28011		
ITEM	DRAWING	TITLE
1	LDW280M10109	BULKHEAD, LOWER F/F
2	LDW280M10085	WEB F/F BEAM
3	LDW280M10007	PANEL, CHEEK
4	LDW280M10105	FRAME, WINDOW, CABIN
5	LDW280M10006	PANEL, BROW
6	LDW280M10066	PANEL, UPPER CENTER
7	LDW280M10010	PANEL, LOWER CENTER
8	LDW280-10119	PANEL, CANTED



LM  
ASCENT STAGE  
FRONT FACE & CABIN  
LTA-8

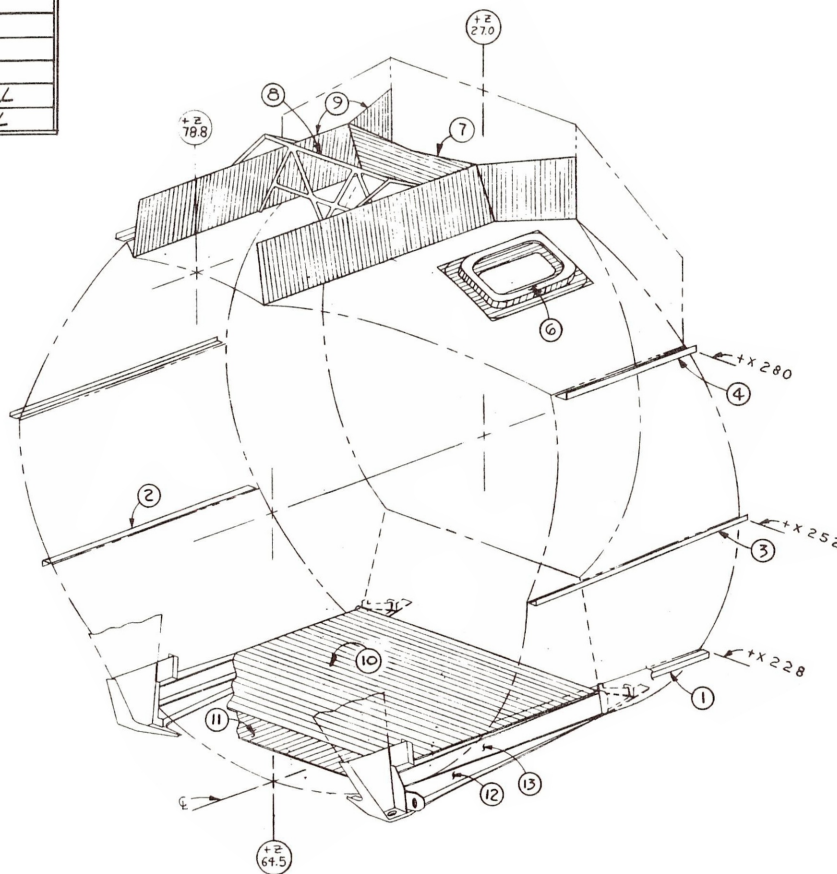
ENGINEERING SCHEDULING - E.F.M. 3-13-65  
10-10-66

SHEET 1

SK17-31-18



CABIN ASSY		
ITEM	DRAWING	TITLE
1	LDW280-28049	LONGERON INSTL. X288 LH.
	LDW280M10034	CAPSTRIP X288 LH.
2	LDW280-28025	LONGERON INSTL X288 RH.
	LDW280M10058	CAPSTRIP X288 RH
3	LDW280-28047	LONGERON INSTL X252
	LDW280M10114	CAPSTRIP X252
4	LDW280-28048	LONGERON INSTL. X280
	LDW280M10092	CAPSTRIP X280
6	LDW280-28023	WINDOW INSTL, UPPER DOCKING
7	LDW280-28114	PANEL - Z39 CANTED
8	LDW280-28066	FRAME INSTL - Z55, NAV. BASE SUPT.
9	LDW280-28031	BEAM INSTL., IMU
10	LDW280H23060	FLOOR ASSY. & INSTL.
11	LDW280-10218	BEAM INSTL. - X218, 1Y22
12	LDW280M10064	FITTING FWD. INTERSTAGE, EXTERNAL
13	LDW280M10065	" " " " , INTERNAL



**SHEET 2**

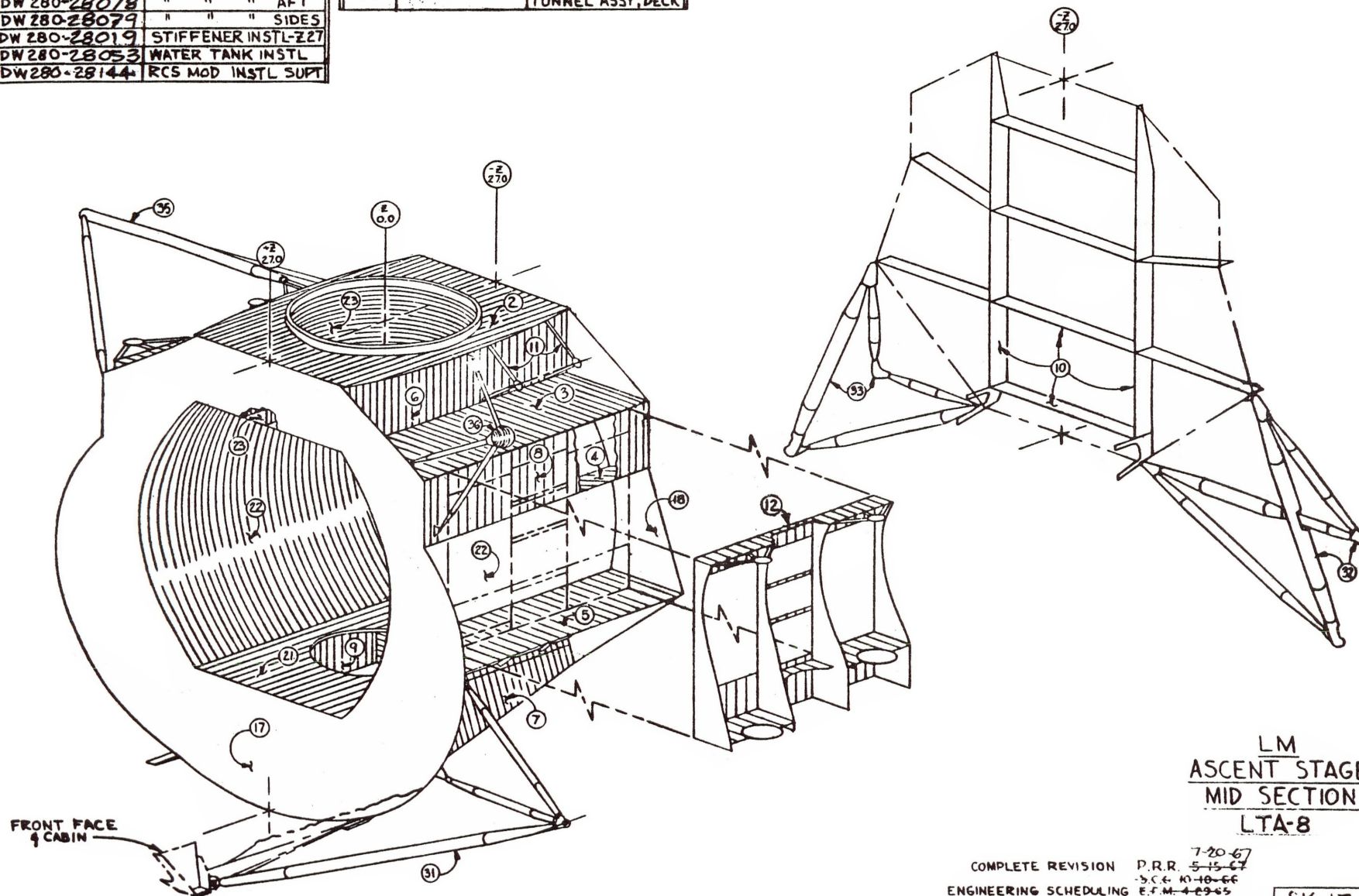
SK17-31-18

MID SECTION STRUCTURE LDW 280 28012		
ITEM	DRAWING	TITLE
1	LDW 280-28020	SKIN INSTL
2	LDW 280-28027	DECK ASSY X 310
3	LDW 280-28039	" " X 294
4	LDW 280-28032	" " INST X 277
5	LDW 280-28029	" " INSTL X 253
6	LDW 280-28028	BEAM ASSY INST X 174
7	LDW 280-28030	" " " " X 22
8	LDW 280-28044	WEB INSTL X 36 3/4
9	LDW 280-28077	BEAM INST, ENG FWD
	LDW 280-28078	" " " " AFT
	LDW 280-28079	" " " " SIDES
10	LDW 280-28019	STIFFENER INSTL X 27
11	LDW 280-28053	WATER TANK INSTL
12	LDW 280-28144	RCS MOD INSTL SUPT

SKIN INSTL LDW 280 28020		
16	LDW 280-28041	SKIN WELD DECK ASSY
17	LDW 280-10001	BULKHEAD, FWD
18	LDW 280-10022	" " " " AFT

SKIN WELD DECK ASSY LDW 280-28041		
21	LDW 280-10003	DECK, LOWER
22	LDW 280-28014	SKIN ASSY
23	LDW 280-28017	DECK ASSY, UPR
		TUNNEL ASSY, DECK

STRUCTURE ASSY A/S LDW 280-28002		
31	LDW 280-28024	TRUSS INSTL TANK SUPT
32	LDW 280-28036	" " " " AFT L.H.
33	LDW 280-28037	" " " " R.H.
35	LDW 280-23256	STEERABLE ANT SUPT
36	LDW 280-23257	FWD VHF ANTENNA SUPT
38	LDW 280-28012	MID SECTION STRUCTURE



COMPLETE REVISION P.R.R. 5-15-67  
 ENGINEERING SCHEDULING E.F.M. 4-29-65

SK 17-3218

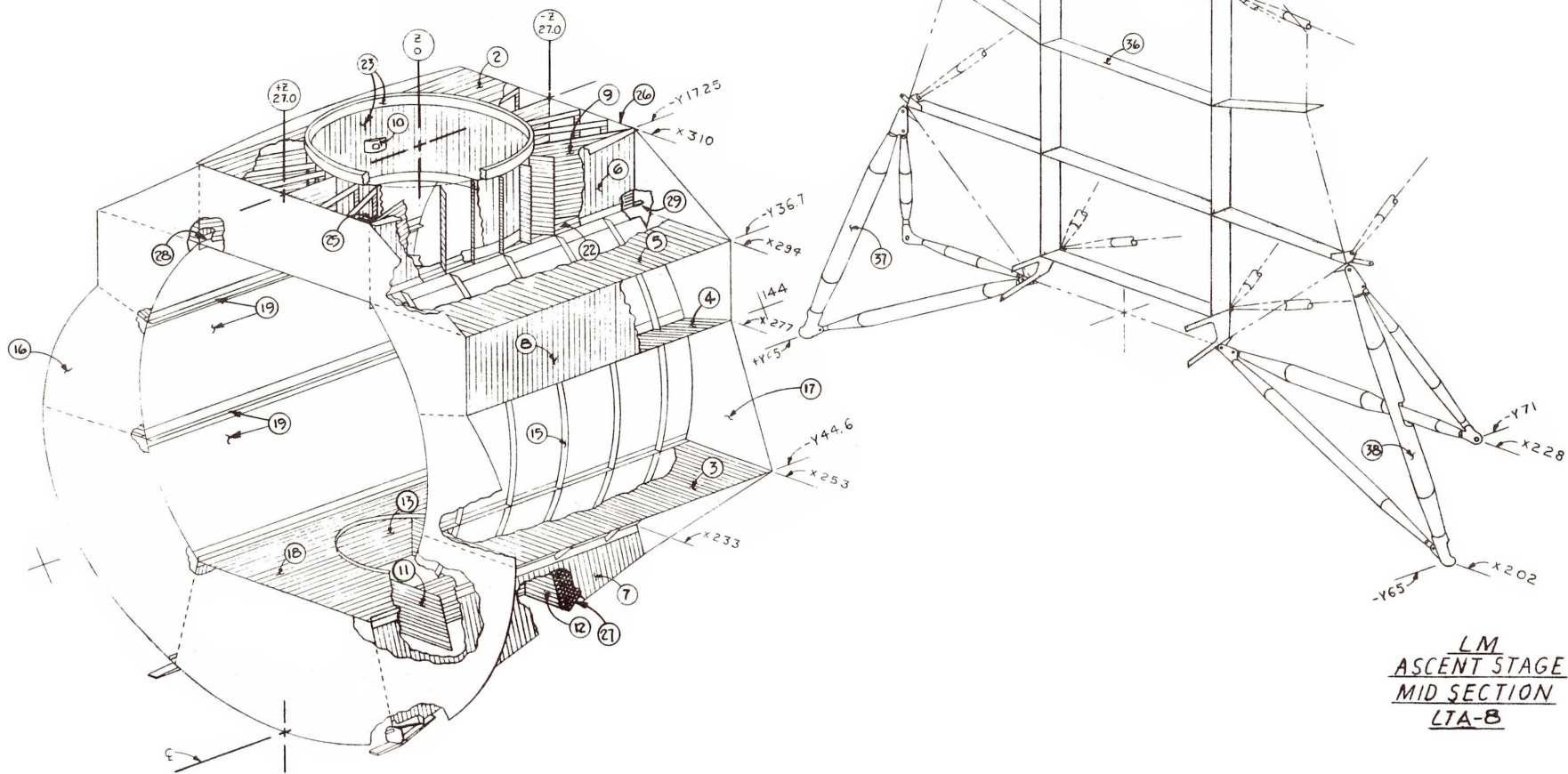


# MID SECTION STRUCTURAL ASSEMBLY LDW280-28012

ITEM	DRAWING	TITLE
2	LDW280-28027	DECK ASSY X 310
3	LDW280-28029	DECK INSTL X253
4	LDW280-28032	DECK ASSY & INSTL X 277 CANTED
5	LDW280-28035	" " " " X 294
6	LDW280-28028	BEAM ASSY & INSTL $\pm Y 17.25$
7	LDW280-28030	" " " " $\pm Y 22$
8	LDW280-28044	WEB INSTL $\pm Y 36.7$
9	LDW280-28050	" " DOCKING TUNNEL
10	LDW280-28076	FTG INSTL DKG. TNL DROGUE SUPT.
11	LDW280-28077	BEAM INSTL. ENGINE; FORWARD
12	LDW280-28078	" " " " AFT
13	LDW280-28079	" " " " SIDE
15	LDW280-28020	STIFFENER INSTL. - SKIN
16	LDW280M10001	BULKHEAD + Z 27
17	LDW280M10232	" - Z 27
18	LDW280-28041	DECK ASSY LOWER
19	LDW280-28014	SKIN ASSY MID SECTION

ITEM	DRAWING	TITLE
22	LDW280-28017	DECK ASSY UPPER X294
23	LDW280-28022	TUNNEL ASSY-UPPER DOCKING
25	LDW280-28126	FITTING INSTL + Z 27, $\pm Y 17.25$
26	LDW280-28127	" " - Z 27, $\pm Y 17.25$
27	LDW280-28100	STIFFENER INSTL. LOWER DECK
28	LDW280-28124	FITTING INSTL + Z 27 $\pm 17.25$
29	LDW280-28125	" " - Z 27 $\pm 17.25$

ITEM	DRAWING	TITLE
36	LDW280-28019	STIFFENER INSTL - Z 27 BULKHEAD
37	LDW280-28036	AFT INTER STAGE TRUSS, LH.
38	LDW280-28037	" " " " , RH.



LM  
ASCENT STAGE  
MID SECTION  
LTA-8

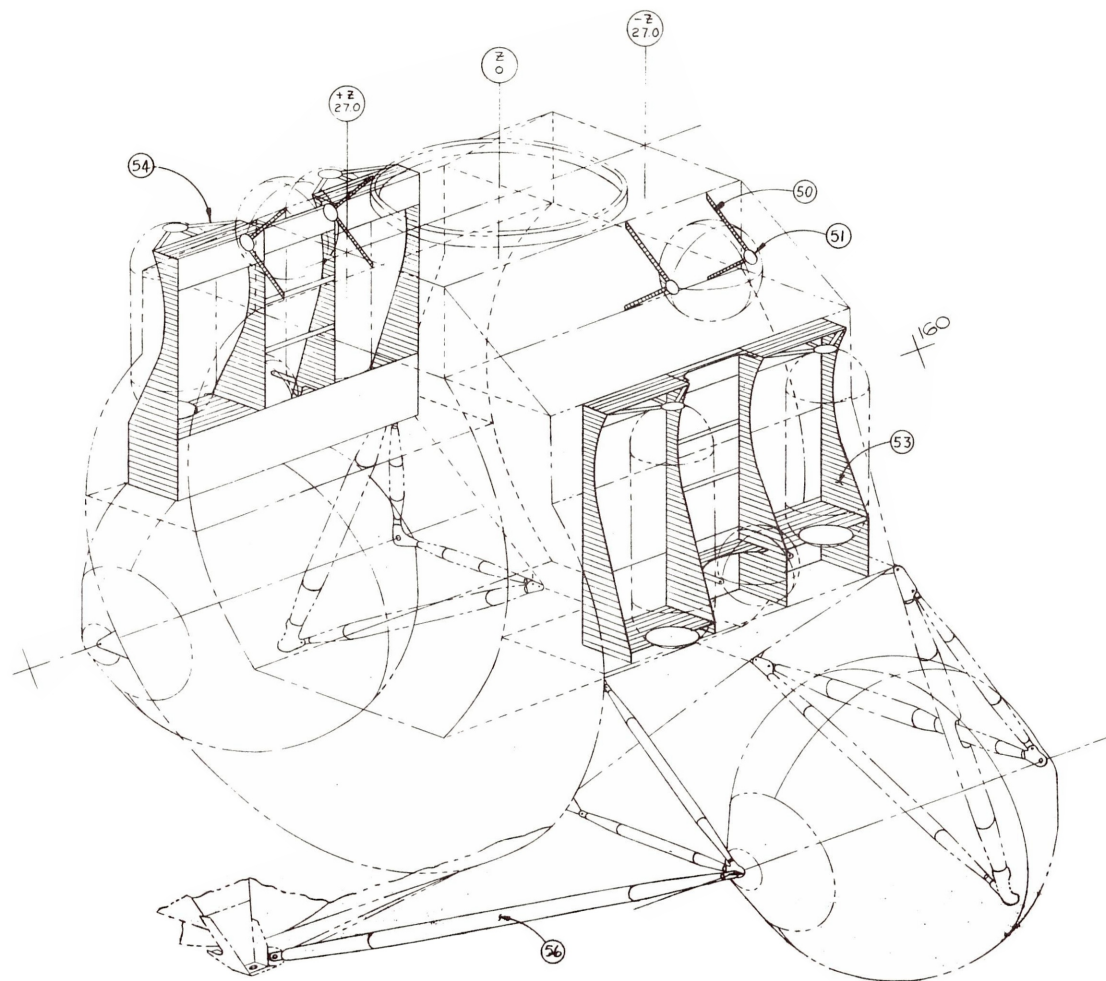
10-10-66  
ENGINEERING SCHEDULING - E.F.M. 4-13-65

GRUMMAN AIRCRAFT ENGRG CORP  
BETHPAGE, L. I., N. Y.

SHEET 1  
SK17-32-18

# MID SECTION

ITEM	DRAWING	TITLE
	LDW280-28053	TANK INSTL-WATER
50	LDW280M10071	FITTING, WATER TANK, LWR SUPPORT
51	LDW280M10285	RETAINER, WATER TANK
	LDW280-28026	TANK SUPT. ASSY & INSTL, RCS
53	LDW280-10112	FRAME, TANK SUPT, RCS
54	LDW280-10115	ANGLE TANK SUPT, RCS
56	LDW280-28024	TANK SUPPORT ASSY-FUEL



LM  
ASCENT STAGE  
MID SECTION  
LTA-8

10-10-66  
ENGINEERING SCHEDULING - E.F.M. 4-29-65

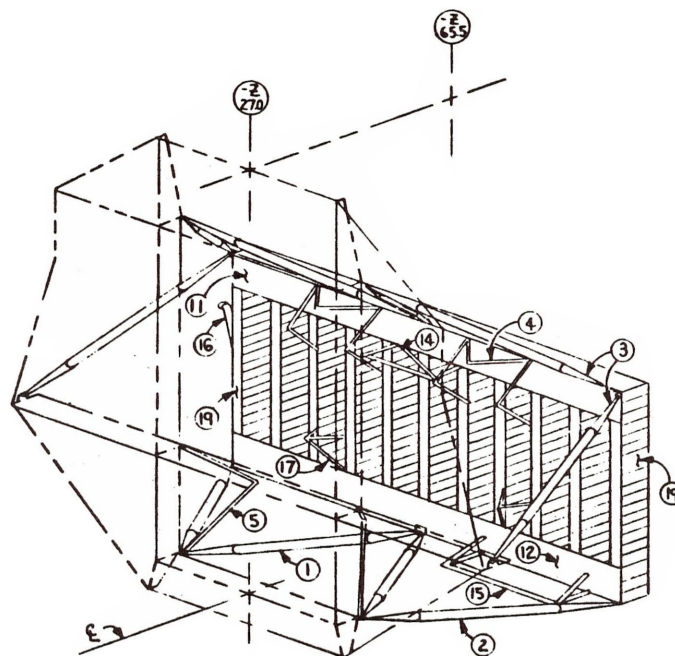
GRUMMAN AIRCRAFT ENGRG CORP  
BETHPAGE, L. I., N. Y.

SHEET 2  
SK17-32-18



AFT EQUIP BAY STRUCT LDW 280-28401		
ITEM	DRAWING	TITLE
1	LDW 280-28426	TUBE RACK SUPT, INBOARD
2	LDW 280-28427	" " " OUTBOARD
3	LDW 280-28425	" " " UPPER
4	LDW 280-28434	FITTING + HE SUPT INSTL
5	LDW 280-28405	RACK ASSEMBLY

⑤ RACK ASSEMBLY LDW 280-28405		
ITEM	DRAWING	TITLE
11	LDW 280-11412	BEAM ASSY HORIZ UPR X 272
12	LDW 280-11413	" " " LWR X 233
14	LDW 280-28421	SUPT INSTL UPR CENT.
15	LDW 280-28422	" " " LWR OUTB.
16	LDW 280-28430	" " " 5" BAND ANT
17	LDW 280-28435	" " " GOX TANK
19	LDW 280-28406	BEAM ASSY VERT 6
	LDW 280-28407	" " " ±Y7
	LDW 280-28408	" " " ±Y14
	LDW 280-28409	" " " ±Y21
	LDW 280-28410	" " " ±Y28
	LDW 280-28411	" " " ±Y35



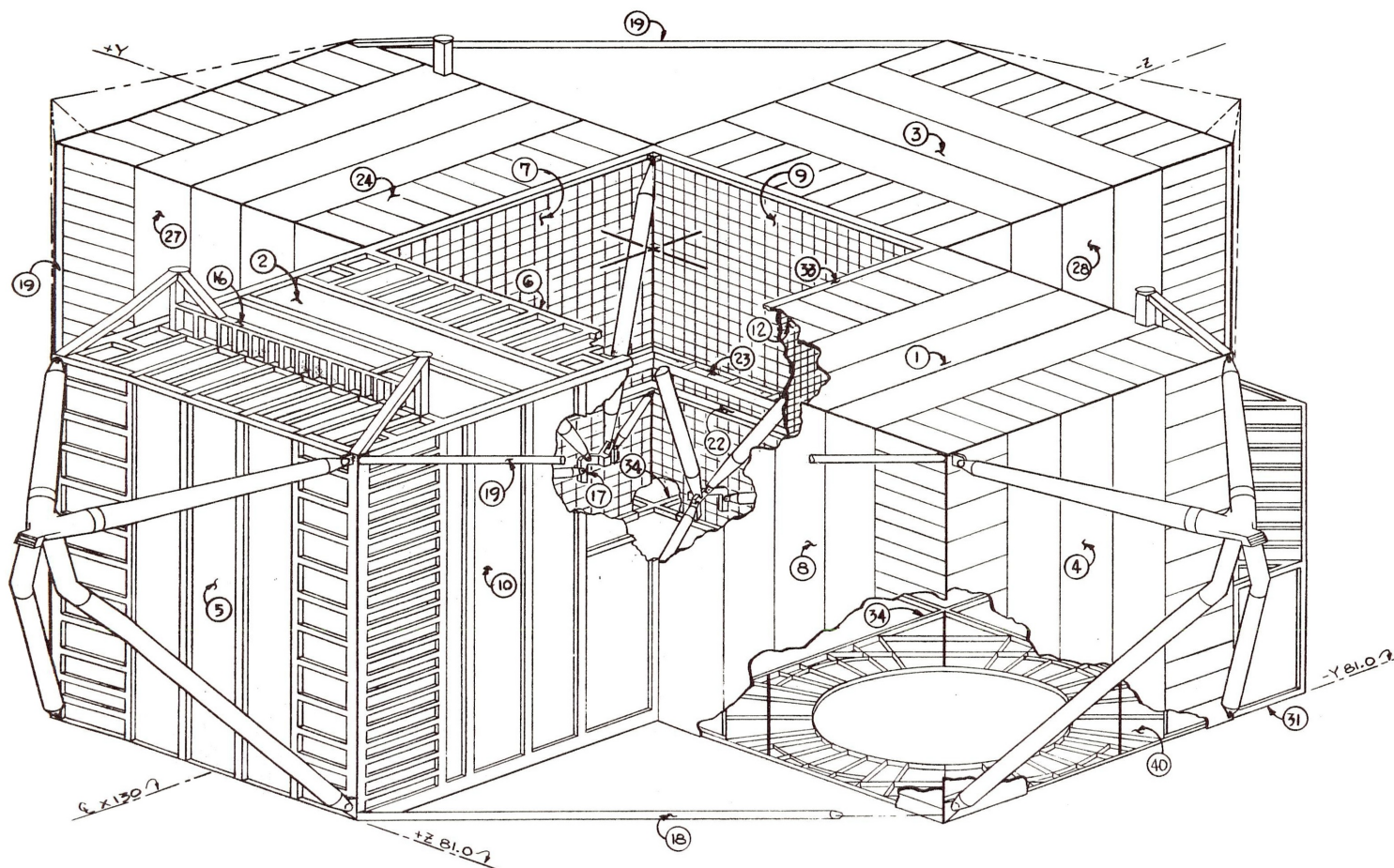
LM  
 ASCENT STAGE  
 AFT EQUIPMENT BAY  
 LM-

COMPLETE REVISION 7-20-67  
 P.R.R. 7-11-67  
 ENGINEERING SCHEDULING 7-10-67  
 R.E.M. 3-26-64

SK 17-33-18

# DESCENT STAGE STRUCTURE LDW 280-28510

ITEM	DRAWING	TITLE	ITEM	DRAWING	TITLE	ITEM	DRAWING	TITLE	ITEM	DRAWING	TITLE
1	LDW280-25521	DECK INSTL. LH. UPPER	16	LDW280-25540	BEAM ASSY. SUPT.	31	LDW280-28569	SUPT. INSTL. SEQ.	---	LDW280-25527	BULKHEAD INSTL., AFT.
2	LDW280-25522	DECK INSTL. FORWARD	17	LDW280-25545	TRUSS INSTL. ENG. SUPT.	---	---	---	---	LDW280-25533	PANEL INSTL., L.H. AFT.
3	LDW280-25523	DECK INSTL. AFT.	18	LDW280-25547	STRUT. INSTL. LOWER	---	---	---	---	LDW280-25534	PANEL INSTL., FWD RH.
4	LDW280-25525	BULKHEAD INSTL. LH.	19	LDW280-25549	STRUT. INSTL. UPPER	33	LDW280M17100	CAPSTRIP ENG. COMP.	---	LDW280-25536	PANEL INSTL., AFT RH.
5	LDW280-25526	BULKHEAD FORWARD	---	---	---	34	LDW280M17101	CAPSTRIP ENG. COMP.	---	LDW280-28524	BULKHEAD INSTL. RH. ENG.
6	LDW280-25529	PANEL INSTL. ENG. FWD.	---	---	---	---	---	---	---	LDW280-28531	PANEL INSTL. RH. AFT. BI.
7	LDW280-25533	PANEL INSTL. ENG. R.H.	22	LDW280-25550	BEAM INSTL. ENG. TRUSS.	---	---	---	---	---	---
8	LDW280-25530	PANEL INSTL. L.H. FWD.	23	LDW280-25551	BEAM INSTL. ENG. AFT.	---	---	---	---	---	---
9	LDW280-25532	PANEL INSTL. ENG. AFT.	24	LDW280-28520	DECK INSTL. RH. UPPER	---	---	---	---	---	---
10	LDW280-25537	PANEL INSTL. FWD. LH.	---	---	---	---	---	---	---	---	---
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12	LDW280-25538	PANEL INSTL. ENG. LH.	27	LDW280-28528	PANEL INSTL. RH. FWD.	---	---	---	---	---	---
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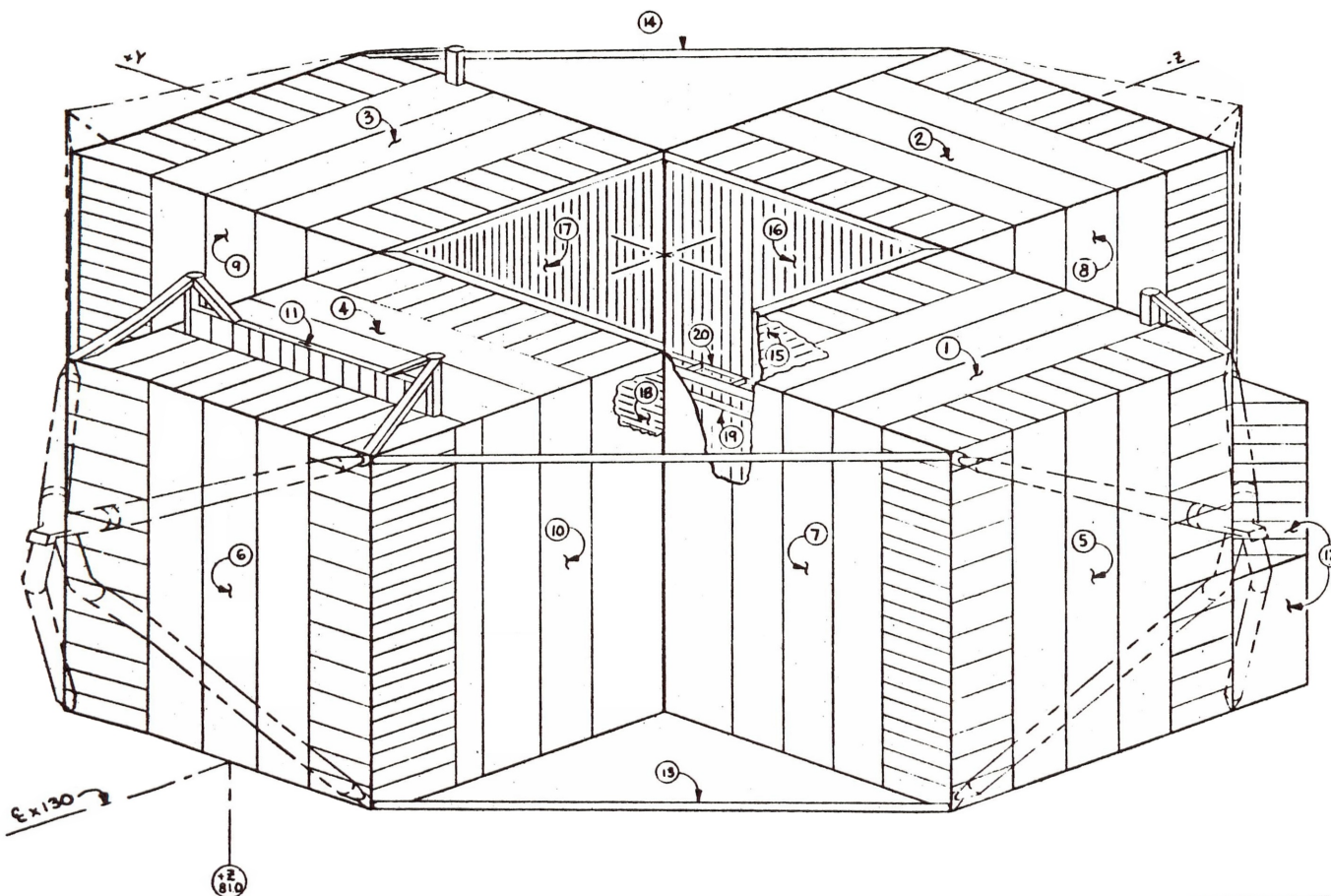


LM  
DESCENT STAGE  
STRUCTURE  
LTA-8  
LDW 280-28510



# DESCENT STAGE STRUCTURE INSTL LDW 280-28510

ITEM	DRAWING	TITLE	ITEM	DRAWING	TITLE	ITEM	DRAWING	TITLE
1	LDW 280-25521	DECK INSTL LH UPPER	8	LDW 280-25539	PANEL INSTL AFT LH	15	LDW 280-25538	PANEL INSTL ENG LH
2	LDW 280-25523	" " " AFT		LDW 280-25536	" " " RH	16	LDW 280-28532	" " " AFT
3	LDW 280-28520	" " " RH	9	LDW 280-28528	" " " RH FWD	17	LDW 280-25535	" " " RH
4	LDW 280-25522	" " " FWD		LDW 280-28531	" " " AFT	18	LDW 280-25529	" " " FWD
5	LDW 280-25525	BULKHEAD INSTL LH	10	LDW 280-25537	" " " FWD LH	19	LDW 280-25550	BEAM " " TRUSS
	LDW 280-25524	" " " RH		LDW 280-28534	" " " RH	20	LDW 280-25551	" " " ACT
	LDW 280-25526	" " " FWD	11	LDW 280-25540	BEAM ASSY SUPT			
6	LDW 280-25527	" " " AFT	12	LDW 280-28569	SUPT INSTL SCI EQ BAY			
	LDW 280-25530	PANEL INSTL LH FWD	13	LDW 280-25547	STRUT INSTL LWR			
7	LDW 280-25533	" " " AFT	14	LDW 280-25549	" " " UPPER			



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7-20-67  
PRK-1467  
ENGINEERING SCHEDULING 366-4-67  
WAS SK17 50 SK-17-51-18

